

Title: Spring Extravaganza

Brief Overview:

This unit involves students collecting, organizing, interpreting, and analyzing data. They will complete a survey to collect data and utilize geometrical shapes to find the area and perimeter of the shapes. The students also will be measuring, designing, and labeling polygons. They will be working in cooperative groups to complete these activities with the exception of the independent writing assignment.

Links to NCTM Standards:

- **Mathematics as Problem Solving**

Students will demonstrate their ability to solve real-life problems in a cooperative atmosphere.

- **Mathematics as Communication**

Students will demonstrate their ability to communicate mathematically. They will read, write, and discuss mathematics with language and the signs, symbols and terms of the discipline.

- **Mathematics as Reasoning**

The students will demonstrate their ability to reason mathematically and gather and use data purposefully.

- **Mathematical Connections**

The students will demonstrate their ability to connect mathematics to real world applications.

- **Geometry and Spatial Sense**

The students will demonstrate their ability to apply geometric shapes. They will find area and perimeter. They also will design and label geometrical shapes.

- **Measurement**

The students will demonstrate applications and apply concepts of measurements by using standard units. The students will use a protractor and ruler to accurately identify, name, and measure angles.

- **Statistics and Probability**

The students will demonstrate their ability to collect, organize, display, analyze, and interpret statistical data. They will write a friendly letter to persuade based on their statistical findings.

- **Fractions and Decimals**

The students will demonstrate their ability to apply concepts of fractions.

Grade/Level:

Grade 3-5

Duration:

5-6 days

Prerequisite Knowledge:

Students should have working knowledge of the following skills:

- Bar graphs
- Pictographs
- Fractions
- Perimeter and area
- Measurement
- Geometric shapes (polygons)
- Writing to persuade
- Format of a friendly letter
- Measuring and naming angles
- Tallying
- Predicting
- Surveying

Objectives:

Students will:

- work in cooperative groups and independently to complete activities.
- make predictions for an event.
- conduct a survey.
- collect, organize, and interpret data.
- construct a bar graph and pictograph using statistical findings.
- use statistical findings to write a persuasive friendly letter.
- utilize geometrical shapes and find the area and perimeter of the shapes.
- measure and name angles using a protractor.
- measure, design and label a region.
- find the fractional part of a whole.

Materials/Resources/Printed Materials:

- Graph paper
- Protractor
- Ruler
- Construction paper
- Crayons or markers
- Teacher selection of expository books on flowers

Development/Procedures:

Activity 1

- Present the scenario to the students. (Student Resource 1)
- Have students brainstorm, as a class, various games and rides they wish to offer as selections for the fair.
- Have students make predictions about which games and rides they think will be the most favorable selections. Why?
- Have students poll, at least, 50 other students using tally marks on Student Resource 1 .
- Have students, as a class, discuss their findings and check their predictions.

Activity 2

- Have students graph results using a bar graph. (Student Resource 2)
Note: The games and rides with the most votes will be the games and rides selected.
- Have students analyze and discuss their data using terms that reflect their knowledge of interpreting graphs.

Activity 3

- Have students use the collected data to write a persuasive friendly letter to their principal. (Student Resource 3)

Activity 4

- Have students discuss the types of flowers, as a class, that should be planted in the flower bed.
- Have students conduct a survey of the types of flowers. (Student Resource 4)
- Have students graph the results using a pictograph.
- Have students make most popular flower $\frac{1}{2}$ of their flower bed, the second most popular flower $\frac{1}{4}$, the third and the fourth most popular flowers $\frac{1}{8}$ of the flower bed.
- In cooperative groups use polygons to design a flower bed following the assigned fractional parts. (Teacher Resource 1)
- Have each cooperative group share their design for the flower bed.
- As a class, vote on which cooperative group designed the best flower bed.
- Have students find the area and perimeter.
- Have students measure and name the angles of the polygon.

Activity 5

- In cooperative groups, have students illustrate and label the chosen flower bed in fractional parts by flower.
- Have students identify the fractional parts of each flower.

Activity 6

- As a class, plant the flower bed at the front entrance of the school.

Performance Assessment:

This unit provides an on-going assessment. The writing prompt, in Activity 3, will be used as an assessment of the students' comprehension of the statistical data. Activities 4 and 5 will be used to assesses the students' understanding of area, perimeter, fractions, measuring, and identifying angles and polygons.

Extension/Follow Up:

The students can research different types of flowers. They can create a graph for the different heights of flowers and find the mean, median, mode, and range for these heights.

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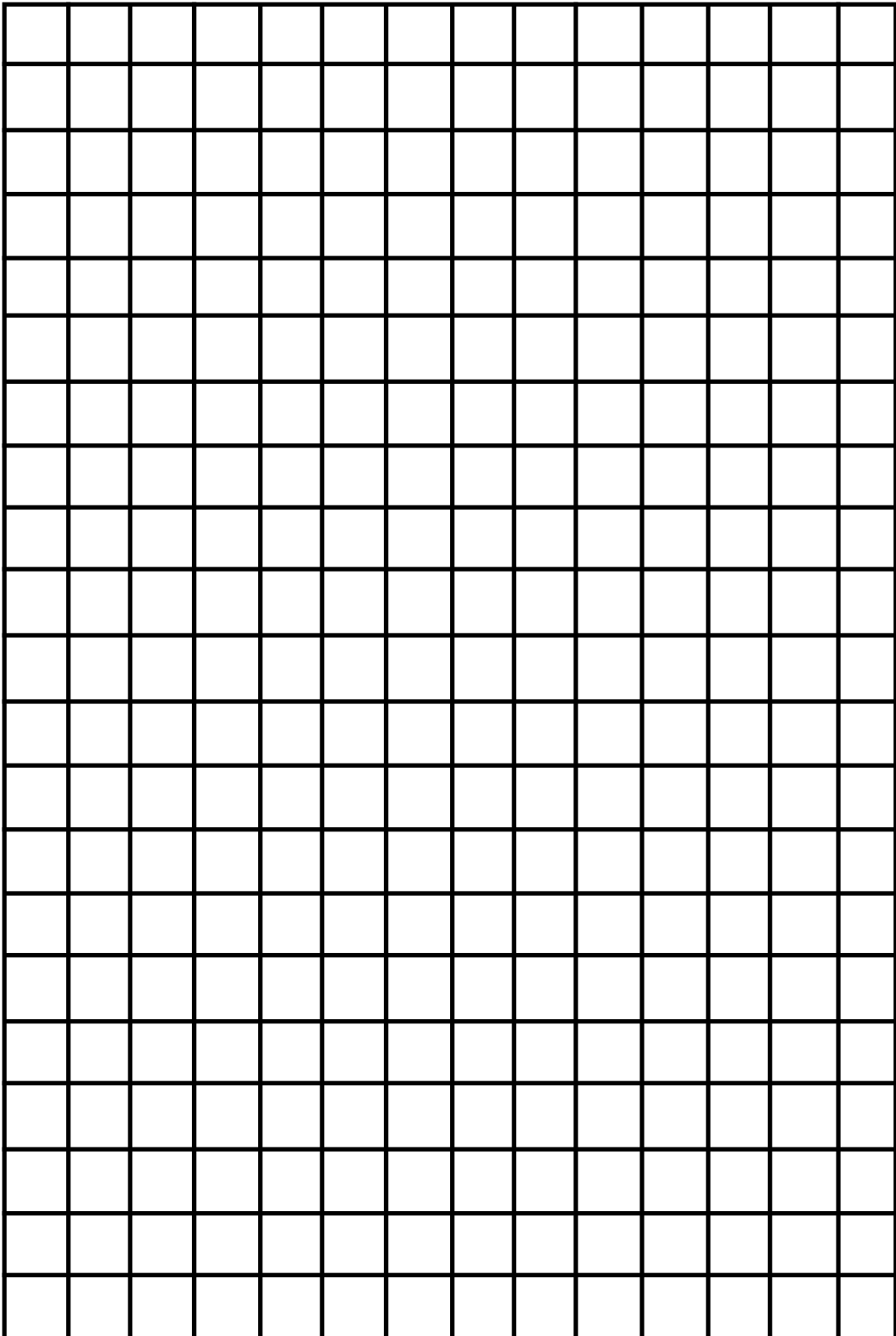
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Your class is in charge of organizing the school's fair. You are in charge of the rides and games. You will need to decide, which rides will you order and what games will be played? The proceeds from the fair will be used to build a new school flower bed, at the entrance of the school. You will also need to plan what size the flower bed will be. What types of flowers will be included in the flower bed and why? How much space will be given to each type of flower and why?

[illegible]

Spring Extravaganza/Student Resource 2



Your class is in charge of purchasing the rides and games for the school's fair. Write a friendly letter to your principal persuading him/her to fund your project. Include statistical data to support your reasoning for the selected rides and games.

[illegible]

Spring Extravaganza/Student Resource 4

With the money from the proceeds from the fair you need to purchase flowers to plant in your flower bed. As a class, conduct a survey of your peers to find the most popular four flowers.

FLOWERS	TALLIES
Impatiens	
Petunias	
Marigolds	
Magnolias	
Chrysanthemums	
Roses	
Carnations	
Pansies	

**Below are possible polygons from
which the students can select.**

